

CLAIMS

1. A digital still camera comprising:

a photographing optical system that forms a subject image

5 by capturing a subject;

a body, to which said photographing optical system is connected;

an image sensor arranged in said body and backward of
said photographing optical system along an optical axis
10 defined by said photographing optical system, light from said
photographing optical system passing through a light-path
space formed between said photographing optical system and
said image sensor along the optical axis, the subject image
being formed on a light-receiving area of said image sensor
15 by the light;

a half mirror, provided in said light-path space, that
directs the light from said photographing optical system
towards said image sensor and toward a focus detecting direction
different from the optical axis;

20 a phase difference focus detector provided outside said
light-path space and along the focus detecting direction, that
detects whether or not the subject image is focused in
accordance with a phase difference obtained from light
directed by said half mirror;

25 a focus adjuster that focuses the subject image in

accordance with the phase difference; and

a recording processor that exposes said image sensor for a given period and records the subject image as data in a recording medium provided in said body;

5 wherein said half mirror is arranged in said light-path space such that all of the light directed from said photographing optical system to said image sensor substantially passes through said half mirror.

2. The digital still camera of claim 1, wherein a size of
10 said half mirror is one of equal to and larger than said light-receiving area and said half mirror is angled to the optical axis such that a projection area of said half mirror along the optical axis becomes one of equal to and larger than said light-receiving area.

15 3. The digital still camera of claim 2, wherein said auto focus detector is arranged under said light-path space and said half mirror inclines toward said photographing optical system.

4. The digital still camera of claim 1, further comprising
20 a viewfinder that forms an observed optical subject image.

5. The digital still camera of claim 1, further comprising an incident light metering processor that detects brightness of the subject in accordance with the subject image formed on said light-receiving area.

25 6. The digital still camera of claim 1, further comprising:

a moving image display for displaying the subject image
as a moving image; and

a displaying processor that displays the subject image
on said display on the basis of the pixel signals read from
5 said image sensor.

7. The digital still camera of claim 6, wherein said moving
image display is arranged in said body, and

wherein said body includes a magnifying optical system
that magnifies the subject image displayed on said moving image
10 display, said magnifying optical system being arranged
backward of said moving image display such that the subject
image is observed from outside of said body.

8. The digital still camera of claim 6, wherein said moving
image display provided on a back surface of said body.

15 9. The digital still camera of claim 1, further comprising
a mirror driver that temporarily moves said half mirror to
a given position such that said half mirror does not interrupt
a light-path of the light directed from said photographing
optical system to said light-receiving area,

20 wherein said recording processor controls said mirror
driver so as to temporarily move said half mirror out of said
light-path space while said image sensor is exposed.

10. The digital still camera of claim 9, further comprising
a shutter provided between said half mirror and said image
25 sensor, that opens and closes,

wherein said recording processor temporarily closes down said shutter until said half mirror is moved out of said light-path space and opens said shutter for a given period after said half mirror is removed from said light-path space.

5 11. The digital still camera of claim 1, wherein said photographing optical system is an interchangeable optical system, which is applied for an SLR (Single Lens Reflex) camera using a photographic film.

12. A digital still camera comprising:

10 a photographing optical system that forms a subject image by capturing a subject;

a body, to which said photographing optical system is connected;

15 an image sensor arranged in said body and backward of said photographing optical system along an optical axis defined by said photographing optical system, light from said photographing optical system passing through a light-path space formed between said photographing optical system and said image sensor along the optical axis, the subject image

20 being formed on a light-receiving area of said image sensor by the light;

a half mirror, provided in said light-path space, that directs the light from said photographing optical system along toward said image sensor and toward a focus detecting direction

25 different from the optical axis; and

a phase difference focus detector provided outside said light-path space and along the focus detecting direction, that detects whether or not the subject image is focused in accordance with a phase difference obtained from light directed by said half mirror,

wherein said half mirror is arranged in said light-path space such that all of the light directed from said photographing optical system to said image sensor substantially passes through said half mirror.